







EXTRACT FROM THE REMARKS OF PROFESSOR SAYRE
OF NEW YORK ON THE TREATMENT OF "SPONDYL-
ITIS", AND OF "SCOLIOSIS", BY PARTIAL SUSPEN-
SION TO IMPROVE THE POSITION OF THE BODY,
AND THE APPLICATION OF PLASTER-OF-PARIS
BANDAGE TO RETAIN IT : AND HIS CONCLUSIONS.

DR. SAYRE said : I am very much obliged for the invitation to make a *practical demonstration* of the plan of treatment adopted by me for some years past for Pott's disease, and also for lateral curvature of the spine. By this means, a more clear and definite understanding of the plan can be conveyed than it is possible to impart in any other manner with the same accuracy and attention to minuteness of detail which is so essential to success. It is neglect of these details in the preparation of the materials, used in the elastic shirt employed, and in the proper application of the gypsum bandage, that has caused the failure of the treatment in the hands of some.

I am quite confident that there is no case of spondylitis, or of scoliosis, that is in condition to be treated by any mechanical means which cannot be more successfully treated by this method than by any other yet devised. At the same time, it can be done with perfect freedom from pain or discomfort, and without any of those excoriations so common in the use of all other mechanical appliances. If any of these accidents should occur in the treatment of a case, it will be due not to the plan which I have suggested, but to the imperfect manner in which that plan has been executed. I have known of cases in which the surgeon or physician had become convinced of the correctness of the plan of treatment, and then transferred the patient to the instrument-maker for its application; and of course, in the majority of cases, this transference to incompetent hands, would produce a failure, and thus bring the treatment into discredit.

I suppose that, in cases of cataract, hernia, ovariectomy, stone, aneurism, trephining, or any other surgical operation, if the same rule were to be adopted, it would be attended with similar results. Certainly no surgeon would expect his instrument-maker to perform any of these operations for him. Neither has he the right thus to expose the life of his patient to danger, or to impose upon the instrument-maker the delicate duty of the application of a bandage, which requires as much, if not more, skill than is necessary for the performance of any of the operations above referred to.

The first requisite is an elastic woollen shirt, knitted and without seams, similar to a stocking, with tapes at the top to tie over the shoulders, instead of sleeves, as the shirt can then be pulled tightly down, and secured by a safety pin between the limbs; and thus, by its elasticity, be made to fit accurately all the inequalities of the trunk.

Previous to its being thus secured, a pad of cotton, folded in a napkin, should be placed under the shirt, over the region of the stomach; and in females it should also cover the mammae. After the plaster has "set", this pad is to be removed, and thus allow room for the stomach to expand after meals, and also to prevent any undue pressure on the mammary glands. The bandages should be made of coarsely woven muslin, called "crinoline", so that the plaster can be rubbed into its meshes. They should be from three to four inches wide, and about three to four yards long. The gypsum should be pure, and freshly ground, and perfectly dry; it should be rubbed into the meshes of the cloth, and then rolled, but not too tightly. As thus prepared, the bandages can be kept in an air-tight vessel, ready for use at any moment. If the climate be very wet, it is as well to subject them to the heat of an oven for a few minutes before using, to evaporate any moisture the plaster may have absorbed.

When about to apply the dressing, the surgeon takes a single roll of the bandage, and drops it into a vessel of cold water, which should be deep enough to completely immerse it in the vertical position, and, as soon as the gas has all escaped, it is ready for use. As he removes it from the water, he squeezes out the surplus water, and drops into the basin another roll—end up—and, by the time the first one is applied, the next will be ready for use. This is to be continued until as many are applied as each particular case may require.

In cases of spondylitis, the patient is to be carefully extended by the head and axillary straps, until he is perfectly comfortable, and never beyond that point.*

I have learned that some surgeons administer an anæsthetic during suspension. I think this practice extremely dangerous, and should most strongly condemn it.

As soon as the patient has been extended until he is perfectly comfortable, apply the wetted roller-bandage smoothly over the skin-fitting shirt, not drawing it tightly, but simply unrolling it around the body, while an assistant follows with his hand and fingers, and presses it into all the inequalities and irregularities of the body, thus obtaining an accurate mould of the trunk in the improved position which extension has given to it; and, by keeping the patient in this position for a few minutes until the plaster has "set", he will then be retained exactly in the same position so long as the plaster remains unbroken.

After the plaster has "set", the pad which has been placed over the stomach and mammae is to be removed. Slight pressure should be made over the lower part of the abdomen in the crista ilii before the plaster has hardened, so as to mould it to the form, and remove the undue pressure on the spinous processes and the crest of the ilium. As soon as the plaster has "set", the patient (unless paralysed) can go out of doors and take the ordinary exercise so necessary for health, and, if an adult, can resume some active employment by which he can earn his support.

The advantages claimed for this plan of treatment are:

1. Its applicability in all cases where any mechanical treatment can be applied, and by any physician in the country without the aid of an instrument-maker.
2. That, being accurately adjusted to all parts of the body when in its improved position, it gives more uniformity of support than can be

* The apparatus and mode of application are fully described in *Sayre on Spinal Curvature*. Smith, Elder, and Co., 15, Waterloo Place. London: 1877.

done by any other means, and without making any undue pressure at any prominent point, and thus avoids all danger from sloughing and excoriations.

3. By absolutely immobilising the spine, and removing undue pressure from the inflamed portion of the vertebrae, it affords greater facilities for ankylosis than can be given by any movable apparatus.

4. The patients thus treated are capable of daily exercise in the open air, so necessary for health, and also of earning their support by manual labour.

5. By applying this treatment in the early stages of the disease before deformity has occurred, the patients will be cured (when curable) without any deformity.

Dr. Sayre then applied the treatment to a boy aged six years, who had a very bad angular deformity in the middle dorsal region from Pott's disease of two years' standing. He was unable to sit up or stand without support, and suffered intense pain on the slightest movement of the body. He had worn a "Taylor's spinal supporter" constantly for two years. When first applied, as stated by Professor Tilanus and Dr. Zegers, the deformity was scarcely perceptible; and although the instrument had been constantly applied and most carefully adjusted, yet the deformity had very materially increased, and the disease was still progressing. The boy was carefully suspended by the neck and axillæ until he expressed himself as feeling comfortable; and the change in his face was certainly most marked, being changed from a pinched expression of agony to a smile of real pleasure. Dr. C. H. H. Sayre, the son of Dr. Sayre, while the boy was thus suspended, then applied the bandages, his father rubbing each layer firmly together and carefully pressing them into all the inequalities of the body. A small pad was placed on either side of the projecting spinous processes to protect them from undue pressure. The head-support or "jury mast" was also added to take off the weight of the head, as suggested by Dr. S. W. Gross of Philadelphia. When the plaster had "set" and the head-swing had been properly adjusted, the little fellow ran around the Hospital without supporting his hands upon his knees as formerly, or resting on any article of furniture.

[Amsterdam, September 15th.—I saw the boy running in the ward to-day, and he says he has been free from pain since the jacket was applied.]

Dr. Sayre then applied the treatment in the case of a young girl with a very severe lateral curvature after she had suspended herself by the pulley and head-swing, as suggested by Dr. Lee of Philadelphia. When she came into the lecture-room, she was wearing a complicated spinal brace with lateral supports and springs worked by screw and lever, the object being to force the body straight. Before this instrument was removed, she was placed against the wall and her height accurately measured by Dr. Zegers. The instrument was then removed, and the same measurement taken. She had increased in height without any extension being applied very nearly three-quarters of an inch; thus proving conclusively that the instrument was not only of no use whatever, but absolutely injurious. The instrument was a very good imitation of Mr. Brodhurst's of London, and manufactured by Busch of Amsterdam. There was an extensive chafe on the projecting angles of the ribs, as also under the axillæ and from the shoulder-straps over the clavicles, showing that the instrument had been applied with as much force as the patient could endure, and yet she was much more erect when it was removed than she was when it was on. The knitted shirt

was then put on, the mammary and stomach pads applied, and the shirt having been previously secured between the thighs, was then drawn up very firmly to make it entirely smooth, and secured by tying the tape over the shoulders. The patient then partially suspended herself by slowly climbing up a rope, which ran over a pulley and was attached to a collar under her chin and occiput. As she thus climbed up the rope, with her arms extended to their full length, until the heels were slightly elevated from the floor, a marked change took place in the curvature of her spine, which was very perceptible to everyone in the room. While she was thus suspended, Dr. C. H. Sayre applied the plaster-bandage, his father carefully rubbing in each layer and making gentle pressure into each intercostal space; and in a few minutes she was completely encased from axillæ to pelvis in the plastic cuirass. So soon as the plaster had become hard, she was placed against the wall where she had been previously measured, Mr. Lister of London and Dr. Zegers of Amsterdam again made an accurate measurement of her present position, and it was found that she had increased more than an inch and a quarter in height, and was nearly two-and-a-half inches taller than she was with the spinal brace upon her. After adjusting her dress, she seemed perfectly comfortable, could take deep full inspirations, and was certainly very greatly improved in her appearance.

The success in these two demonstrations was complete, and the superiority of the plan of treatment very frankly admitted by every member of the Congress present.



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